

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-24. (Canceled)

25. (New) A photovoltaic integrated building component, comprising:

a polymer substrate;

a first solar cell laminate assembly and a second solar cell laminate assembly disposed over the polymer substrate, each solar cell laminate assembly including a solar cell assembly, each solar cell assembly having a first side for receiving photons and a second side for producing an electrical current, each solar cell laminate assembly further including a backplane assembly disposed between each solar cell assembly and the polymer substrate, the backplane assembly including a metal layer in electrical contact with the second side of each solar cell assembly; and

a sealing member operably connected to the first and second solar cell laminate assemblies, the sealing member including an electrical connector in electrical contact with the metal layer of the backplane assembly to provide electrical interconnection between the first and second solar cell laminate assemblies.

26. (New) The component according to Claim 25, wherein the sealing member is operably connected to the first and second solar cell laminate assemblies by a snap-fit feature for engaging a snap-fit feature of the first and second solar cell laminate assemblies.

27. (New) The component according to Claim 25, wherein the polymer substrate is capable of being directly attached to a rafter of a building structure.

28. (New) The component according to Claim 25, wherein the polymer substrate is capable of being directly attached to a batten of a building structure.

29. (New) The component according to Claim 25, further comprising an encapsulant for encapsulating each solar cell assembly.

30. (New) The component according to Claim 29, further comprising a glass substrate disposed over the encapsulant.

31. (New) The component according to Claim 25, wherein the backplane assembly further includes an insulating substrate disposed between the polymer substrate and the metal layer.

32. (New) The component according to Claim 25, wherein each solar cell assembly comprises a plurality of silicon wafers.

33. (New) The component according to Claim 32, wherein the plurality of silicon wafers are mounted on a polymer flex substrate.

34. (New) The component according to Claim 33, wherein electrical current produced by each silicon wafer is transported to an edge connector of the metal layer by an interconnect pattern in a series string.

35. (New) The component according to Claim 34, wherein the series string includes a diode for allowing a failed series string to be bypassed.

36. (New) The component according to Claim 34, wherein the edge connector includes a conductive extension that extends normal to the polymer substrate along a periphery of the first and second solar cell laminate assemblies.

37. (New) The component according to Claim 25, further comprising a plastic frame disposed about a periphery of the first and second solar cell laminate assemblies.

38. (New) The component according to Claim 37, further comprising a heat sink assembly in thermal communication with the conductive extension for dissipating heat from the first and second solar cell laminate assemblies.

39. (New) The component according to Claim 38, wherein the heat sink assembly is embedded in the plastic frame.

40. (New) The component according to Claim 38, wherein the heat sink assembly comprises cooling fins insert molded with the plastic frame.

41. (New) The component according to Claim 38, wherein the heat sink assembly comprises a high emissivity layer molded in the plastic frame.

42. (New) The component according to Claim 38, wherein the plastic frame includes a keyed channel for facilitating attachment of the component to a batten of a building structure.

43. (New) A photovoltaic integrated building component, comprising:

a polymer substrate;

a first solar cell laminate assembly and a second solar cell laminate assembly disposed over the polymer substrate, each solar cell laminate assembly including a solar cell assembly, each solar cell assembly having a first side for receiving photons and a second side for producing an electrical current, each solar cell laminate assembly further including a backplane assembly disposed between each solar cell assembly and the polymer substrate, the backplane assembly including a metal layer in electrical contact with the second side of each solar cell assembly, each solar cell laminate assembly including a frame disposed about a periphery of each solar cell laminate assembly, a portion of the metal layer extending from the frame defining an edge connector; and

a sealing member operably connected to the first and second solar cell laminate assemblies, the sealing member including an electrical connector in electrical

contact with the edge connector extending from the frame of each solar cell laminate assembly to provide electrical interconnection between the first and second solar cell laminate assemblies.

44. (New) The component according to Claim 43, further comprising an electrical buswork connected to the male electrical connector for providing a conduit for generated power from each solar cell assembly.

45. (New) The component according to Claim 43, wherein each solar cell laminate assembly includes a channel for receiving an O-ring for providing a seal between the sealing member and each solar cell laminate assembly.

46. (New) The component according to Claim 43, wherein the first electrical connector comprises a female electrical connector, and wherein the second electrical connector comprises a male electrical connector.

47. (New) The component according to Claim 43, further comprising a fastener for biasing the sealing member towards each solar cell laminate assembly to provide a seal therebetween.

48. (New) The component according to Claim 43, further comprising an indicating means for providing a visual indication of the electrical interconnection between the first and second solar cell laminate assemblies.

49. (New) The component according to Claim 43, wherein a heat sink assembly is embedded in the plastic frame.

50. (New) The component according to Claim 49, wherein the heat sink assembly comprises cooling fins insert molded with the plastic frame.

51. (New) The component according to Claim 49, wherein the heat sink assembly comprises a high emissivity layer molded in the plastic frame.

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52. (New) The component according to Claim 43, wherein the plastic frame includes a keyed channel for facilitating attachment of the component to a batten of a building structure.